

## **Draft Environmental Analysis**

Economic Development, as defined in the context of NMSU planning, is a process for creating economic opportunities for individuals and growth opportunities for enterprises, raising the standard of living for New Mexicans. To envision how NMSU may spark, support, and sustain these activities, an accurate understanding of the environment is critical. An environmental analysis, also known as an analysis of strengths, weaknesses, opportunities, and threats (SWOT; Figure 1), was performed. Both internal (strengths and weaknesses) and external (opportunities and threats) factors were considered.

### **Strengths**

As the State's land grant university, NMSU boasts an impressive range of academic programs, with more than 80 majors, the State's only Honors College, and unique learning opportunities such as interdisciplinary graduate program options and the nation's first Doctor of Economic Development. Additionally, NMSU's stature as a research institution is formidable: the university ranks in the top 100 in the U.S. in Federal Research Expenditures and is noted by the Carnegie Foundation as an RU/H (a university with high research activity). NMSU researchers are developing cutting-edge advancements in subjects as diverse as biosciences; information sciences and security systems; natural resource sustainability and renewal; southwest and border regions health, education, culture, and development; and 21<sup>st</sup> century aerospace. NMSU's Cooperative Extension Service facilitates the impact of the university's vast resources throughout the New Mexico, with representation in each of the State's 33 counties. Incorporating NMSU's community college/branch campuses, we serve over 34,000 students.

NMSU benefits from the wealth of diversity represented by its faculty, staff, and students. Classified as a Hispanic-serving institution, NMSU is home to a broad student population and hosts a thriving support network for minority students. From the highest level, NMSU's administration and leadership is committed to creating a supportive environment for the diversity of its community – initiatives such as IDEA grants to assist programs and projects working to “support ... an increasingly diverse academic workforce and student body on the NMSU...campus,” demonstrate our dedication to this tenant.

NMSU maintains productive partnerships with a wide range of federal and state agencies. Our relationships with national laboratories, military installations, and other federal entities link NMSU not only to the innovative research emerging from these institutions, but also connect us with the State's largest employers. The Department of Defense, NASA, and Department of Health and Human Services are among the largest contributors to NMSU's research funding. At the State level, NMSU research was supported by the New Mexico Department of Health, the New Mexico Department of Workforce Solutions, the New Mexico Higher Education Department, and New Mexico Children, Youth and Families Department. These resources, along with strong relationships with organizations and institutions such as Los Alamos National Laboratory, Sandia National

Laboratories, White Sands Missile Range, and the New Mexico Economic Development Department represent some of NMSU's greatest strengths in economic development. NMSU demonstrates economic development expertise through programs such as the Arrowhead Center, whose mission is to promote prosperity and public welfare in New Mexico through economic development. Arrowhead Center not only helps to create a prosperous environment for intellectual property and technology transfer, but also promotes the development of an entrepreneurial climate in New Mexico through small business assistance and development, entrepreneurial outreach programs, and technology business incubation. In its research park, and NMSU's abundant land resources for future expansion, Arrowhead Center provides scientists, entrepreneurs, and technologists with facilities and an environment rich with entrepreneurial support.

### **Weaknesses**

The challenges NMSU faces are not unique – universities across the country deal with similar trials as they negotiate the delicate balance of education, research, and service, all under the burden of decreasing funding.

One challenge is effectively and efficiently commercializing NMSU-generated inventions and innovations from campus to the marketplace. Traditionally, university technology is early-stage and requires significant financial investment to approach marketability. University technology transfer offices are working to more effectively reach out to campus inventors and regional investors to increase technology commercialization. Presently, a lack of incentives for faculty involvement in technology transfer activities discourages time commitment to these efforts. While new paradigms of technology transfer, such as a “proof of concept model” aim to increase revenue from and market impacts of university innovations, significant work must be undertaken in this area.

Another issue to be addressed is a lack of ready access to the wealth of economic development resources NMSU can provide to the citizens it serves. NMSU gathers some of the nation's finest sources of technical and professional expertise, but is missing a single point of entry to those assets. Presently, there is no overarching list of personnel and services related to economic development, nor a portal of contact through which those seeking assistance may be directed to these resources.

NMSU also has not yet successfully connected the multiple services offered by Arrowhead Center and Arrowhead Park to the work of the Office of Research and Sponsored Programs. A more integrated approach to research and economic development could provide a more coherent program to engage faculty and student inventors and researchers in economic development.

Finally, NMSU must continue to strengthen its relationships with public and private investors, as well as with major corporations. Developing alternative sources of funding is imperative when universities face budgetary shortfalls and significant decreases in available federal and state monies for higher education.

## **Opportunities**

NMSU is on the precipice of emerging opportunities. Our greatest prospects will develop through the partnerships we can forge and sustain. Opportunities for collaborations and alliances at federal, state, and community levels, with both public and private entities, represent possibilities for economic development. The New Mexico Economic Development Department reports that, with numerous high-demand products and services, New Mexico has the potential to attract significant foreign investments (NMEDD).

Presently, the State is embarking on a number of initiatives tied to economic development, notably Spaceport America and clean energy-related programs. NMSU currently serves a number of technical, planning, analytical, and operational roles in the Spaceport project; identifying means to increase the university's presence is a significant opportunity. Further, federal funding is being made available for a variety of regional innovation/economic development initiatives, which capitalize on NMSU's position as a border institution. By incorporating New Mexico's existing industries into emerging projects and partnerships, NMSU can best capitalize on new prospects.

With a higher demand for a "green workforce" NMSU may partner with industries and higher education institutions statewide, such as the University of New Mexico and the New Mexico Institute of Mining and Technology, to implement curricula and training programs that will prepare citizens for existing and new green jobs. Declared "The Clean Energy State," New Mexico is competitive in clean technology fields, which provides business development and growth opportunities for New Mexicans. A common thread in renewable energy research, as well as in other areas of innovation, is the need to bring together researchers from a variety of fields and disciplines. By taking advantage of NMSU's vast array of technical expertise and resources, we can support existing and develop new multidisciplinary approaches to this and other State economic development initiatives. Further bolstered by its collaborative partnerships with fellow agencies, national labs, and government entities throughout New Mexico, NMSU is poised to play a significant role in State economic development.

Finally, the NMSU President has made economic development a university priority, declaring a "new era of excellence through partnership"; NMSU will: "Be the economic engine for New Mexico through linking and strengthening our research and economic development partnerships.

## **Threats**

Perhaps the greatest external challenge to NMSU's economic development efforts is the impact the national economy has had on State and federal budgets. NMSU receives funding from, for example, national laboratories and government agencies for research and programs. Competition for dwindling resources is intense, as institutions across the State scramble to meet budgetary shortfalls by vying for diminished funding. Reduction in expenditures in these and other areas negatively affects NMSU and its economic

development plans. The same holds true for sources of private investment, such as venture and angel capital. With less money to invest in an unstable, challenging economy, investors are wary. An historic lack of diversification in New Mexico’s state and regional economies makes it difficult to attract the attention and interest of increasingly limited private funding.

For New Mexico to attract and retain employers and businesses that spur economic development, it must have a quality workforce that meets industry demands. New Mexico faces numerous challenges in workforce preparedness as public education must be accomplished with less funding. To ensure the highest-quality workforce, State educational institutions need to be able to work together to identify and address deficiencies. At the same time NMSU works to ensure our graduates are ready to serve the needs of prospective employers, they must also be imbued with the drive and skills to develop their own sources of income. Encouraging students to recognize the importance of and teaching them to contribute to an entrepreneurial climate will serve those students and the State.

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>▪ Academics, research, and extension resources and services</li> <li>▪ Diversity in faculty and student populations; Hispanic Serving Institution</li> <li>▪ Position as a borderland institution</li> <li>▪ Entrepreneurship initiatives</li> <li>▪ research park development and technology transfer</li> <li>▪ Partnerships with national labs, state and federal agencies</li> </ul>	<ul style="list-style-type: none"> <li>▪ Low rate of technology transfer</li> <li>▪ Lack of researcher incentives to engage in technology transfer</li> <li>▪ Limited partnerships with industry</li> <li>▪ Lack of ready access to economic development resources of NMSU</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>▪ Interest in NM from international businesses</li> <li>▪ Regional business growth opportunities (Space/aerospace, clean energy, homegrown industries)</li> <li>▪ Growing trend in multidisciplinary research, technology, and innovation</li> <li>▪ Growth in partnerships with the national labs, government agencies and state government</li> <li>▪ Federal funding opportunities for regional innovation economic development</li> </ul>	<ul style="list-style-type: none"> <li>▪ National and State recession economy</li> <li>▪ Intense competition for public and private funding</li> <li>▪ Limited private investment (venture capital, angel) in State and region</li> <li>▪ Lack of diversification in state and regional economy</li> <li>▪ Workforce readiness</li> <li>▪ Underdeveloped entrepreneurial climate</li> </ul>

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Figure 1: Overview of SWOT analysis.

**General Comments:**